CA1
DA4
-42P67

Government
Publications

Report of Sub-Committee

The National Advisory Beef Committee
To investigate….

CA1 DA 4
-42P67

Canada. National Advisory Beef Committee

Government
Publications

Report of Sub-Committee

Appointed by

The National Advisory Beef Committee

To Investigate

The Practicability of Selling Cattle by Carcass Grade and Weight

March, 1942

Published by
Authority of the HON. JAMES G. GARDINER, Minister of Agriculture
Ottawa, Canada

LIBRARY
SEP 10 1942
UNIVERSITY OF TORONTO

5766—5M-4-42

EXECUTIVE

National Advisory Beef Committee

R. S. Hamer, Chairman—Director, Production Services,
Dominion Dept. of Agriculture.

W. D. Davies, Secretary—Assistant Chief,
Live Stock Division,
Dominion Dept. of Agriculture.

Members

R. G. Knox —Professor of Animal Husbandry,
Ontario Agricultural College,
Guelph, Ontario.

J. P. Sackville —Professor of Animal Husbandry,
University of Alberta,
Edmonton, Alberta.

L. B. Thomson —Supt. Dominion Experimental Station,
Swift Current, Saskatchewan.

C. F. Bailey —Supt. Dominion Experimental Station,
Fredericton, New Brunswick.

Sub-Committee appointed by the National Advisory Beef Committee to undertake studies in Vancouver as per the following resolution:—

"That the Department undertake experimental work, preferably in connection with B.C. beef grading, to determine the practicability of grading to the producer and marketing cattle by carcass grade and weight."

Sub-Committee

L. B. Thomson, Chairman —Supt. Dominion Experimental Station,
Swift Current, Saskatchewan.

E. MacGinnis, Secretary —Markets Commissioner,
B.C. Dept. of Agriculture,
Victoria, B.C.

Jack Byers —Supervisor of Live Stock Production,
Dominion Dept. of Agriculture,
Calgary, Alberta.

F. B. Ward —Representing B.C. Stockgrowers,
Victoria, B.C.

F. M. Baker —Representing Industrial & Development,
Council of Meat Packers,
Winnipeg, Manitoba.

M. V. Campbell —Beef Grader—Markets Division,
Dominion Dept. of Agriculture,
Vancouver, B.C.

CA1 DA 4
-42P67

INTRODUCTION

The National Advisory Beef Committee was constituted in 1938. It was an outgrowth of the general policy initiated by the National Advisory Committee on Agricultural Services which comprises Dominion and Provincial representatives and acts in an advisory capacity to the Dominion Department of Agriculture. The National Advisory Beef Committee has replaced the Joint Beef Committee which was constituted in 1928 following a meeting at Winnipeg of representatives of all phases of the beef industry. The result of this meeting was the introduction of the Graded Beef Policy of Red and Blue branded beef which came into effect in 1929.

Since the inception of this National Advisory Beef Committee many studies have been conducted which embodied investigations from Halifax to Vancouver. At a meeting held in Toronto in April, 1939, the problem of selling cattle by carcass grade and weight was fully discussed. No information was available to the committee upon which to base recommendations. It was, therefore, decided to conduct a study on this problem and a sub-committee was set up for the purpose. Because the Government of British Columbia had introduced the compulsory Beef Grading Act in the city of Vancouver, and selling beef on a carcass graded basis to the consumer was in effect, it was decided to conduct the study at this point.

The study began on September 5, 1940, in co-operation with the following packing plants: Burns & Co., Canada Packers, Swift & Co., Pacific Meat, and the Alberta Meat, all of Vancouver.

Procedure

At the inception of this study, September 5, 1940, it was necessary to make contact with the packing companies at Vancouver. A meeting was held with them in which an outline was presented of the plan of study involved. The packers' representatives expressed their willingness to co-operate, and facilities of the different plants were placed at the disposal of the Committee.

The plan was to conduct the study of the animals and their carcasses upon an individual basis. A record sheet was prepared and a trial study was initiated by the Committee (see Appendix 1). Following this, the general study was put into effect. Each packing plant established a special cattle chute in order to carry out individual studies through the plant. The beef manager of each plant co-operated with the representatives of the Production and Marketing Services of the Dominion Department of Agriculture in carrying out the actual work. The cattle were individually tagged, live graded by the packer buyer, individually weighed before going to the killing floor, and the identity of each animal maintained. The individual hot carcass weight was recorded and the carcass grade, designated by the packer representative as well as by the official Government grader independently, were also recorded. All record sheets were forwarded to the Dominion Experimental Station, Swift Current, where the information was transferred to a special project book according to live grades, official grades, and weight ranges. Analyses were made of the data in order to correctly interpret the different factors influencing such a policy as embodied in the resolution. From time to time these analyses have been presented to the Committee and much discussion resulted upon which further studies were based.

In addition to the above work, special studies on shrink, handling charges, etc., have been conducted. Carloads of cattle upon arrival at the packing plant were individually weighed, ear-tagged, and then followed through the plant.

Since the inception of the study over 3,000 animals have been studied individually. Appendix 2 shows the distribution of the animals by grade, weight, and class.

Study of Grading

The Committee incorporated a study of the comparison between live grading and the carcass grading, according to the standards set up by the British Columbia Beef Grading Act. Live grades have been used on the market for some time and the object was to determine the reliability of this practice. In addition, information was obtained on the consistency of carcass grading by the official Government grader and the Packer Grader in each plant.

Table 1 presents an analysis of the relationship between live grading and carcass grading:—

TABLE 1.—COMPARISON OF LIVE AND OFFICIAL CARCASS GRADING

Live Grade	No. Animals	Official Carcass Grades				
		A1	A	B	C	D
			Steers			
Choice	185	72	92	20	1	....
Good	1,225	116	803	282	24	....
Medium	857	21	392	403	37	4
Fair	102	2	17	49	33	1
Plain	3	....	....	....	2	1
Total	2,372	211	1,304	754	97	6
			Heifers			
Choice	85	20	48	15	2	....
Good	404	32	252	110	8	2
Medium	209	1	61	124	21	2
Fair	57	....	19	20	11	7
Plain	13	....	....	3	6	4
Total	768	53	380	272	48	15
			Steers and Heifers			
Choice	270	92	140	35	3	....
Good	1,629	148	1,055	392	32	2
Medium	1,066	22	453	527	58	6
Fair	159	2	36	69	44	8
Plain	16	....	....	3	8	5
Total	3,140	264	1,684	1,026	145	21

The cattle included in the above table were individually live graded by the packer buyer at the time of weighing. The table indicates that live grading is not consistent with carcass grading. If carcass grading is considered the correct measure of quality, then the present method of buying cattle according to live grades has little to merit its continuation. Cattle are mostly purchased in carload lots and in many cases live grades are not the measure of price, but in a general way uniformity, quality and finish are considered by the buyer and his judgment is the determining factor. There are really no definite standards set up between live grades, hence human judgment is the deciding factor. Table 1 indicates that despite the great experience of most cattle buyers, their judgment of live cattle is not consistent in relation to carcass grading. In view of this situation there would naturally be a tendency for the buyer to under-grade cattle when buying them rather than to over-grade.

The above facts and further observations made at different stockyards in Canada would indicate that the method of statistically grading live cattle according to price paid is purely a "hit and miss" method.

The next question to answer (which is vital to the producer) is, are graders of carcasses consistent, and are the standards between grades sufficiently definite to avoid error of judgment?

Table 2 presents a summary of the grading done by the packer representative as compared with that done by the official Government Grader.

TABLE 2.—COMPARISON OF OFFICIAL AND PACKER CARCASS GRADING

(*See* Appendix 3, 4 and 5)

Official Grade	Number of Carcasses	Packer Grade			
		Number Agreed	Per cent Agreed	Over-graded	Under-graded
A1	259	216	83	....	43
A	1,625	1,400	86	70	155
B	962	804	84	121	37
C	159	133	84	26	....
D	21	21	100	....	....
Total	3,026	2,574	85	217	235

NOTE.—Table includes steers and heifers.

The above table indicates a close relationship between the grading done by the packer grader and the official grader. They agreed on standards in 85 per cent of the carcasses graded. The difference in grading occurred mostly in A1, A and B carcasses, where there was only a difference of one grade in all cases. It would appear from the data when studied by periods that there is a gradual improvement in the consistency of the grading as time goes on, and that the percentage in which there is agreement continually increases rather than fluctuates. The study would also indicate the need to consider more definite standards between A and B carcasses, as this is where the greatest differences occur.

It is suggested by this Committee that more definite empirical standards for the various carcass grades are required. In this study carcass grading was quite consistent, but the need for research to guide the future program and the need for educational facilities for training future graders is evident.

Study of Dressing Percentage

The main object of the study is to determine the practicability of selling cattle by carcass grade and weight. The study of dressing percentage is important because of its direct connection with the yield in pounds of beef for which the producer should be credited.

Table 3 presents a summary of the data obtained.

TABLE 3.—SUMMARY OF DRESSING PERCENTAGES OF STEERS AND HEIFERS

Grade	Steers		Heifers	
	No. Animals	Dressing %	No. Animals	Dressing %
Live Grades—				
Choice	154	60·17	75	57·70
Good	1,062	57·94	347	56·11
Medium	766	57·07	187	54·79
Fair	91	56·09	53	52·44
Plain	3	54·15	13	52·77
Official Grades—				
A1	178	60·47	40	58·25
A	1,139	58·23	305	56·30
B	664	56·31	261	55·13
C	89	55·33	54	52·52
D	6	53·34	15	51·75
Total	2,076	57·71	675	55·58

Table 3 indicates that carcass grading shows a more consistent trend in spreads between grades than is the case with live grading. From the above table it might be assumed that a definite dressing percentage could be established for each of the grades and cattle sold accordingly. This assumption is not a correct one and would be detrimental to the producer because there is such a variation in dressing percentage within each grade. Special studies were made on this point and the data are shown in Appendix 6. The distribution of the dressing percentages of the steers and heifers that graded "good" live grade and "A" carcass grade is shown. Wide variations in dressing percentage are apparent. The mean dressing percentage of the steers both in the "good" live grade and the "A" carcass classifications falls between 57 and 58 per cent. For the heifers, the mean is between 56 and 57 per cent. If the mean dressing percentages were established as a standard for the grade for each group it would accurately apply only to a small proportion of the animals. In all cases less than half the animals were included in the class containing the mean plus the class above and below the mean. Thus the adoption of the mean dressing percentage as a standard would not be satisfactory and would unfairly discriminate against the producers of high quality animals with higher than average dressing percentages.

This study shows quite clearly that any method of selling cattle by carcass grade and dressed weight must be done on an individual basis.

Shrink and Time of Shipping

The question of dressing percentage in relation to the number of hours the animals were in transit and in relation to the area from which they were shipped is of interest to the producer. To determine the effect of each of these factors the average dressing percentages of steers weighing from 901 to 1,000 pounds, live weight, were tabulated. A total of 398 animals was studied. These animals came from the Kamloops, Caribou, and Calgary areas. The number of hours they were in transit varied from 120 to 240. These data are shown in table 4.

TABLE 4.—COMPARISON OF DRESSING PERCENTAGES OF STEERS SHIPPED FROM THREE DIFFERENT AREAS AND THAT WERE IN TRANSIT VARYING LENGTHS OF TIME

Shipping Point	Number of Hours in Transit									
	120–143		144–167		168–191		192–215		216–240	
	No. Animals	Dress. per cent Average	No. Animals	Dress. per cent Average	No. Animals	Dress. per cent Average	No. Animals	Dress. per cent Average	No. Animals	Dress. per cent Average
Kamloops........	1	60·5	7	58·11	11	58·06	6	58·15	25	57·85
Calgary..........	113	58·60	53	57·46	0	....	57	57·13	23	58·83
Caribou..........	61	55·59	0	....	0	....	0	....	41	55·42

An examination of this table shows that the number of hours in transit had very little effect upon the dressing percentage of the steers from the Kamloops, Caribou or Calgary area. The animals from the Kamloops area do show a difference in dressing percentage when the 120 to 143 hour period is compared with the other periods. However, as only one animal was in this period, 60·5 per cent can not be considered a reliable figure.

There is very little difference in the dressing percentages of the cattle from the Kamloops and Calgary areas regardless of the number of hours in transit. However, the differences in dressing percentages were rather great when the cattle from the Caribou area were compared with the cattle from the Calgary or Kamloops area.

It can be concluded, therefore, that there are factors present that affect the dressing percentage other than the number of hours the cattle were in transit.

In order to determine the effect upon body weight of keeping cattle for various lengths of time at the yards of the slaughtering plants a shrink study was conducted in February, 1942. In this study 160 animals were slaughtered at various intervals ranging from 24 to 120 hours after arriving at the yards. Each animal was tagged and individual weights taken as they were unloaded and before they had received any feed or water. Each animal was again weighed just before going up to the killing floor. In all cases they received no feed during the 24 hours previous to the time of the second weighing. The animals that were killed within 48 hours after arrival received water but no feed.

TABLE 5.—ANALYSIS OF DRESSING PERCENTAGE AND GAIN IN WEIGHT OF ANIMALS HELD IN YARDS VARYING LENGTHS OF TIME

Period	Dressing per cent		Gain in Body Weight
	A grade	B grade	
1 (24–47 hrs.)	60·0	59·8	−1·5
2 (72–95 hrs.)	59·7	59·3	12·0
3 (96–120 hrs.)	58·4	56·9	12·6

An examination of the table shows that the animals in the first period lost weight. This would be expected because these animals received no feed while in the yards. The animals in both the second and third period increased in weight.

A study of the dressing per cent shows that the animals in group one dressed higher than the animals in group two and the animals in group two higher than those in group three. Although the animals in group two were slightly lower in dressing per cent than group one, they had increased in weight. This increase in weight more than made up for the decrease in dressing per cent. But with group three, the decrease in dressing per cent more than offset the increased weight.

Putting the results of this study in terms of "A" grade animals weighing 900 pounds off car the following comparisons can be made:

Period	Gain in Weight	Slaughter Weight	Dressing per cent	Carcass Weight
1	−1·5	898·5	60·0	539
2	12·0	912·0	59·7	544
3	12·6	912·6	58·4	533

This comparison shows that the animals produced a heavier carcass if slaughtered in the second period than if slaughtered in the first or third, and also a heavier carcass in the first period than in the third. Therefore, there is evidently some shrinkage when animals are held in the yards for more than 95 hours.

Equivalent Carcass Price Study

(*See* Appendix 8)

On all cattle killed through the plant, the live price per pound was obtained from the actual invoices. Of the cattle included in this study some were purchased in lots according to grade and quality and others on a flat basis.

The live proceeds per animal used in Study 1 were obtained by using the price per hundredweight actually paid by the buyer for the group of animals, although the group may have contained more than one grade of animals. This price was multiplied by the live weight at the shipping point which was obtained by prorating back to the live weight at the plant of each animal, according to weight ranges, the shrink or gain in weight while in transit. By using individual hot carcass weights and live proceeds per animal, the equivalent carcass price, or the price per pound required to give the same proceeds as with live weight and live price, was determined.

A summary of the results of this study is presented in table 6.

TABLE 6.—SUMMARY OF PRICE ANALYSIS ON BASIS OF THE ACTUAL LIVE PROCEEDS

Live Grade	Number	Live Weight	Car Hot Weight	D per cent	Live Price Lb.	Proceeds	Equivalent Carcass Price*
C	154	985	593	60·17	7·88	79·84	13·47
G	1,062	986	571	57·94	7·49	76·15	13·33
M	766	955	545	57·07	7·42	73·27	13·45
F	91	941	528	56·09	7·23	69·73	13·21
P	3	787	426	54·15	7·02	57·07	13·40
Carcass Grade—							
A1	178	1,017	615	60·47	7·89	82·42	13·40
A	1,139	987	575	58·23	7·52	76·38	13·29
B	664	949	534	56·31	7·44	72·39	13·53
C	89	870	481	55·33	6·40	65·07	13·52
D	6	883	471	53·34	6·62	59·47	12·62

* Equivalent carcass price—the carcass price per pound necessary to realize the same proceeds.

Table 6 presents some interesting data. Classified according to live grades and the carcass grades there is a fairly definite downward trend in live weight from high grades to low grades. The influencing factors here are age, quality and finish. The dressing per cent has a similar trend. When cattle are classified according to live grade, the live price per pound from choice grade to plain cattle shows a spread of only 0·86 cents per pound which indicates that little attention in buying is given to the difference in quality between these grades. Classified according to carcass grades there is a difference of 1·27 cents per pound between A1 and D, which still indicates insufficient spread between different grades of cattle. The proceeds per animal according to both live and carcass grades have a definite trend from high to low grades. When equivalent carcass price is arrived at in the last column it is shown that there is little difference between high and low grade cattle in both classifications. This indicates quite clearly that because of the inconsistency of live grading of cattle with carcass grading and because of the variation in dressing percentage, cattle are not being purchased according to their quality. The producer of high quality cattle is being penalized and the producer of low grade cattle is overpaid.

The point next to consider is the value of the offal or fancy meats. A study was conducted to determine offal value. The value of the various parts is shown in table 7.

The weights for the various parts are as given in the yield card made up by Swift & Co. of Chicago and are based upon a study of thousands of animals. The values per pound are the prices that the packers were receiving in Vancouver in February 1942. The value per pound of the offal is the same for each grade of animal.

In this study with cattle selling at 9 to 10 cents per pound live weight, the hide and fancy meats had a value of from 8·5 to 10 per cent of the value of the animal. The percentage value was slightly higher with small animals than with large animals, mainly because the hide of small animals is heavier in proportion to the body weight than is the hide of larger animals.

In order to check on the Chicago standards, 22 animals were checked through the packing plant and the results agreed with these standards.

TABLE 7.—HIDE AND FANCY MEAT VALUES

Live Weight of Animals	Hide			Heart			Liver			Tongue			Head Meats			Total Values
	Wt.	Value per lb.	Total Value	Wt.	Value per lb.	Total Value	Wt.	Value per lb.	Total Value	Wt.	Value per lb.	Total Value	Wt.	Value per lb.	Total Value	
		$	$		$	$		$	$		$	$		$	$	$
500-599	39	·095	3·70	2·2	·05	0·11	5·2	·12	0·62	2·1	·115	0·24	2·8	·075	0·21	4·88
600-699	46	·095	4·37	2·6	·05	0·13	6·2	·12	0·74	2·5	·115	0·29	3·3	·075	0·25	5·78
700-799	53	·095	5·03	3·0	·05	0·15	7·1	·12	0·85	2·9	·115	0·33	3·8	·075	0·28	6·64
800-899	58	·095	5·51	3·4	·05	0·17	8·1	·12	0·97	3·3	·115	0·38	4·3	·075	0·32	7·35
900-999	65	·095	6·17	3·8	·05	0·19	9·0	·12	1·08	3·7	·115	0·42	4·7	·075	0·35	8·21
1,000-1,099	69	·095	6·55	4·2	·05	0·21	10·0	·12	1·20	4·1	·115	0·47	5·3	·075	0·40	8·83
1,100-1,199	76	·095	7·22	4·6	·05	0·23	10·9	·12	1·31	4·5	·115	0·51	5·8	·075	0·43	9·70

In order to carry the price study further and to determine the accuracy of the statements made from table 6, the live weights at the plant and hot carcass weights formed the same basis for a study. In Appendix 8 it will be observed that there are three separate studies. Study 1 is the same as that summarized in table 6. Study 2 is based on the live price per pound according to grades as quoted by packers, and Study 3 is based on the carcass selling price according to carcass grades as quoted by packers.

TABLE 8.—SUMMARY OF PRICE ANALYSIS USING PACKERS' QUOTED LIVE PRICES AND LIVE GRADES

(*See* Appendix 8, Study 2)

—	Price per Pound	Spread	Equivalent Carcass Price	Spread
	cents	cents	cents	cents
Choice	7·75	75	12·95	88
Good	7·00	50	12·07	58
Medium	6·50	50	11·49	58
Fair	6·00	25	10·91	29
Plain	5·75	....	10·65	....

In column 1, table 8, these live prices per pound are the prices upon which the packers base their live purchases of the various grades of cattle. Therefore, the live weights at the plant and the same hot carcass weights as in table 6 were used to arrive at the equivalent carcass price. It will be observed in table 8 that there is a definite downward trend in equivalent carcass price according to live grade.

The next step followed was to classify all these same animals according to carcass grades. That is, all the individual animals were re-classified and the average live price and average equivalent carcass prices for each grade determined. Table 9 shows the result.

TABLE 9.—SUMMARY OF PRICE ANALYSIS USING PACKERS' QUOTED LIVE PRICES AND OFFICIAL CARCASS GRADE

	Live Price	Equivalent Carcass Price
	cts.	cts.
A1	7·14	11·81
A	6·88	11·81
B	6·68	11·86
C	6·46	11·67
D	6·29	11·83

First of all it is observed that classifying animals according to carcass grades has the effect of narrowing the spread in the live prices paid. In table 8, the spread between high and low is 2 cents per pound while in table 9, the rearrangement of the carcasses has reduced the spread to 0·85 cents per pound. This indicates again the inconsistencies between live and carcass grading. The most significant feature in table 9, however, is the approximate parity in equivalent carcass prices shown for the several grades. Transposing to carcass grade the quoted prices for each live grade on cattle, individually graded alive, results in all carcasses, irrespective of grade, carrying approximately the same equivalent carcass price per pound of beef. This indicates very definitely that, while the live price differentials between grades recognized differences in dressing percentages, they did not recognize and reward differences in quality.

During the period when the live prices for the different grades of steers (table 8) fell in the range of 7·75 cents to 5·75 cents the wholesale selling prices and spreads as quoted by the packer for the different carcass grades are as follows:

TABLE 10.—LIST OF PACKER QUOTED WHOLESALE CARCASS SELLING PRICES AND SPREADS BETWEEN CARCASS GRADES QUOTATIONS

	Price per lb.	Spread
	cts.	cts.
A1	14·50	0·50
A	14·00	1·00
B	13·00	1·50
C	11·50	1·00
D	10·50	

The next step followed was to determine the range of live price per pound that should be maintained in relation to the above selling prices. Using the carcass prices in table 10 and the hot carcass weight, the proceeds per animal for each grade was obtained. The live price per pound is then obtained by dividing by the live weight at the plant. The average of these prices for the various grades is given in table 11.

TABLE 11.—SUMMARY OF PRICE ANALYSIS USING PACKER QUOTED WHOLESALE CARCASS SELLING PRICES AND CARCASS GRADES

	Price per lb.	Spread
	cts.	cts.
A1	8·80	0·64
A	8·16	0·89
B	7·27	0·89
C	6·38	0·78
D	5·60	

Table 11 shows a spread in live price of 3·20 cents per pound between A1 and D carcasses. If selling cattle by dressed grade and dressed weight is considered the soundest practice, then the above spreads should be maintained. As the proceeds from hides and fancy meats do not vary greatly between high and low grade cattle, this factor is not considered in the above calculations (see table 7).

Having arrived at a definite range in price for live grades of cattle according to the range in price of carcass grades, the next step was to re-classify all the animals according to live grades. This was done with individual animals, again using initial live weight and hot carcass weights as the measure. The live price per pound according to live grades is shown in table 12.

TABLE 12.—SUMMARY OF PRICE ANALYSIS USING PACKER QUOTED WHOLESALE CARCASS SELLING PRICES AND LIVE GRADES

	cts.		cts.
Choice	8·34	Fair	6·89
Good	7·95	Plain	6·05
Medium	7·56		

Comparing table 12 with table 11 it is seen when classifying the same animals according to live grades the spread is only 2·29 cents per pound as compared to 3·20 cents per pound when classified on a carcass graded basis.

The studies reported in tables 8 to 12, indicate very clearly how the inconsistencies of live grading of cattle influence any policy of selling cattle and suggest the advantage of selling cattle by carcass grade and weight. The data also show that if proper relative spreads are to be maintained between the different grades of beef, it will be possible only by paying for cattle on the basis of dressed price, dressed weight and dressed grade. To go only part way in such a program by applying official carcass grades on cattle purchased on a live weight, live price basis, would eliminate from grading much of the guesswork. It would not, however, provide for an exact settlement for cattle falling into each grade unless all were marked in a way permitting of their being followed through to the rail as individuals. Furthermore, it would not fully recognize value delivered as indicated by both dressing percentage and carcass quality.

SUMMARY AND CONCLUSIONS

1. The results of the beef study, including 3,499 animals studied individually, through the different packing plants in Vancouver, indicate very definitely the need for:

(*a*) A revision of the present system of marketing cattle by live grade and weight in order to obtain a fairer distribution of the revenue to the producer on a quality basis.

(*b*) The consideration by the National Beef Committee of:

(i) A national policy of marketing in order to eliminate the many inconsistencies;

(ii) A policy of stimulating quality production by encouraging consumption of beef on a quality and grade basis.

2. Tables presented throughout the report show definitely that the present method of buying cattle on a live grade and weight basis is not consistent with the present official carcass grading on the British Columbia grade basis. If carcass grading and selling graded beef to the consumer is considered the best policy of marketing beef, then the present method of buying cattle on the basis of live appraisal leaves much to be desired and measures should be undertaken to correct it.

3. The study of the individual dressing percentage of the animals shows that it varies widely within grades of both live and carcass grades. The study also shows that any policy initiated for the selling of cattle by carcass grade and weight must be on an individual basis. Using average dressing percentages would not reflect correct returns to the seller of cattle.

4. The tables on equivalent carcass price show that there is practically no spread between high grade and low grade cattle and this will ultimately discourage the producer of good quality cattle. Low grade cattle bring a higher price than they are worth in comparison with high quality cattle. Studies also show that the offal value does not vary with grades.

5. If the beef industry in Canada is to improve in the production of quality cattle; if the quality of beef sold to the consumer is to improve; and increased consumption of quality beef is expected to improve the present domestic market, this Committee concludes in the following statement, "that the only feasible and practical policy would be for the market to buy cattle on a dressed weight and dressed grade basis and that beef be sold to the consumer on the same basis."

6. The study shows that the selling of cattle by dressed grade and dressed weight is practicable. Quality and condition of cattle are more important than the number of hours of shipping cattle from different points to the market. The time of holding cattle in the yards before slaughter would not interfere with any such policy, as in varying period from 24 to 95 hours of holding cattle, the dressed carcass weight would show no loss. After a period of 95 hours of holding cattle (which is unusual) a policy of adjustment in weight on a percentage basis similar to the present system of marketing hogs could be adopted.

7. In a policy of selling cattle by carcass grade and weight, identification of cattle is important. In this study of individual animals where ear tags were used no difficulties were encountered, nor did the system followed in any way affect the carcass weight. Tattooing up to the present time has not proved practical but further research is being conducted and it is believed this method may prove practical in time.

Recommendations

1. It is recommended to the National Beef Committee:

(1) That a voluntary system for marketing beef cattle by dressed grade and dressed weight be introduced in different parts of Canada, the mechanics of such a policy to be presented to the industry. In order to initiate the policy on a gradual basis the following procedure is suggested:

  (*a*) That all institutions, both Dominion and Provincial, having cattle for market, be invited to co-operate in a plan of selling cattle by carcass grade and carcass weight, the carcass grade standards to be set up by the National Beef Committee.

  (*b*) That producers of cattle from different points in Canada be invited to join in this plan.

(2) That the National Beef Committee introduce an educational program to acquaint all phases of the beef industry with the need to consider improvement policies.

(3) That definite lines of research be introduced to supplement and guide a policy of selling cattle by carcass grade and carcass weight. Experiments and research projects should be conducted and used as a basis for establishing the fundamental principles involved from the producer to the consumer in such a system of marketing cattle.

APPENDIX 1

Plant						Average Live Weight at Ship. Point	Live Price per Pound	Proceeds	Live Weight at Plant	Approx. Hours Ship. to Slaughter	Carcass Weight Hot	Dress. per cent	Packers' Grade on B.C. Basis	Official Grade	Carcass Price Pound to Equal Live Proc.
Slaughter Date	Tag No.	Ship. Point	Breed	Sex	Live Grade										
1/22	2475	Calgary	Shorthorn	Steer..	Good....	820	7·85	64·37	810	192 hrs.	454	56·05	A	A	14·18
1/22	2476	"	"	" ..	Medium.	900	7·85	70·65	890	"	506	56·85	A	A	13·96
1/22	2477	"	Hereford..	" ..	Choice..	965	7·85	75·75	955	"	558	58·45	A	A	13·58
1/22	2478	"	Shorthorn	" ..	Good....	910	7·85	71·44	900	"	496	55·11	B	B	14·40
1/22	2479	"	Angus.....	" ..	Good....	1,130	7·85	88·70	1,120	"	650	58·04	A-1	A	13·65
1/22	2480	"	Shorthorn	" ..	Medium	990	7·85	77·72	980	"	569	58·06	A	A	13·66
1/22	2481	"	Holstein...	Heifer	Good....	930	7·00	65·10	900	120 hrs.	464	51·56	B	B	14·03
1/22	2482	"	Shorthorn	"	Medium	900	7·00	63·00	870	"	501	57·50	BC	B	12·57
1/22	2483	"	"	"	Choice..	930	7·00	65·10	900	"	552	61·33	A-1	A	11·79
1/22	2484	"	"	"	Good....	745	7·00	52·15	715	"	407	56·92	B	B	12·81

APPENDIX 2

TOTAL NUMBER OF ANIMALS BY CLASSES

		Steers						Heifers						Cows						
Weight	Off. Gr.	Choice	Good	Med.	Fair	Plain	Total all Gr.	Choice	Good	Med.	Fair	Plain	Total all Gr.	Off. Gr.	Choice	Good	Med.	Fair	Plain	Total all Gr.
301 to 400	A	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...
	Total	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...
401 to 500	A1	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	...
	A	...	2	...	...	...	2	2	2	...	...	...	4	...	...	...	...	...	...	...
	B	...	...	1	...	...	1	2	5	1	...	...	8	...	...	...	...	...	...	...
	Total	...	2	1	...	...	3	5	7	1	...	...	13	...	...	...	...	...	...	...
501 to 600	A1	...	...	...	...	...	...	5	4	1	...	...	10	...	...	...	...	...	...	...
	A	1	3	1	...	...	5	8	9	7	2	...	26	...	...	...	...	...	...	...
	B	...	3	3	...	...	6	2	11	14	2	...	29	...	...	...	...	...	...	...
	C	...	1	...	1	...	2	...	...	4	5	...	9	...	...	...	...	...	...	...
	D	...	...	...	...	...	...	...	1	...	3	3	7	...	...	...	...	...	...	...
	Total	1	7	4	1	...	13	15	25	26	12	3	81	...	...	...	...	...	...	...
601 to 700	A1	3	2	...	...	...	5	5	4	...	...	...	9	...	...	...	...	...	...	...
	A	3	6	7	...	...	16	12	66	16	2	...	96	...	...	...	...	...	...	...
	B	...	8	16	...	...	24	4	19	20	3	...	46	...	...	...	...	...	...	...
	C	...	2	...	2	...	4	1	3	6	4	4	18	...	...	...	...	...	...	...
	D	...	...	...	...	...	...	...	1	2	2	1	6	...	...	...	...	...	...	...
	Total	6	18	23	2	...	49	22	93	44	11	5	175	...	...	...	...	...	...	...
701 to 800	A1	...	6	...	...	...	6	5	14	...	...	...	19	...	...	...	...	...	...	...
	A	8	44	35	2	...	89	13	79	20	14	...	126	...	...	...	...	...	...	...
	B	1	32	54	7	...	94	5	27	51	7	1	91	...	...	...	...	...	...	...
	C	...	4	10	6	1	21	...	1	6	...	1	8	...	...	...	...	...	...	...
	D	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
	Total	9	86	99	15	2	211	23	121	77	21	2	244	...	...	...	...	...	...	...
801 to 900	A1	6	25	1	...	...	32	2	8	...	...	...	10	BC	...	2	2	...	...	4
	A	18	134	83	2	...	237	10	58	10	...	...	78	CC	...	1	3	...	...	4
	B	10	54	118	15	...	197	1	24	22	5	2	54	...	...	...	...	...	...	...
	C	...	5	10	11	1	27	1	3	3	2	1	10	...	...	...	...	...	...	...
	D	...	...	2	1	...	3	...	...	...	2	...	2	...	...	...	...	...	...	...
	Total	34	218	214	29	1	496	14	93	35	9	3	154	...	...	3	5	...	...	8

901 to 1000	A1	16	29	10	....	....	55	1	....	....	....	....	1	BC	1	3	16	2	....	22
	A	31	263	138	4	....	436	2	32	8	1	....	43	CC	....	5	4	1	....	10
	B	5	97	119	15	....	236	1	17	12	2	....	32	DC	....	1	1	....	....	2
	C	1	7	14	8	....	30	....	1	1	....	....	2	....	....	....	....	....	....	....
	D	....	....	2	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....
	Total	53	396	283	27	....	759	4	50	21	3	....	78	....	1	9	21	3	....	34
1001 to 1100	A1	28	38	6	....	....	72	1	2	....	....	....	3	BC	....	11	5	....	....	16
	A	21	223	77	5	....	326	....	6	....	....	....	6	CC	....	15	14	4	....	33
	B	3	61	64	8	....	136	....	6	4	1	....	11	DC	....	....	2	2	....	4
	C	....	5	3	5	....	13	....	....	1	....	....	1	....	....	....	....	....	....	....
	Total	52	327	150	18	....	547	1	14	5	1	....	21	....	....	26	21	6	....	53
1101 to 1200	A1	15	9	....	....	....	24	....	....	....	....	....	....	BC	3	10	6	....	....	19
	A	9	98	37	1	....	145	....	....	....	....	....	....	CC	2	11	13	2	....	28
	B	....	19	21	2	....	42	....	1	....	....	....	1	DC	....	1	2	....	....	3
	Total	24	126	58	3	....	211	....	1	....	....	....	1	....	5	22	21	2	....	50
1201 and up	A1	4	7	4	2	....	17	....	....	....	....	....	....	BC	....	4	1	1	....	6
	A	1	30	14	3	....	48	....	....	....	....	....	....	CC	....	18	22	3	1	44
	B	1	8	7	2	....	18	....	....	....	....	....	....	DC	....	....	3	1	....	4
	Total	6	45	25	7	....	83	....	....	....	....	....	....	....	....	22	26	5	1	54
All Weights	A1	72	116	21	2	....	211	20	32	1	....	....	53	BC	4	30	30	3	....	67
	A	92	803	392	17	....	1,304	48	252	61	19	....	380	CC	2	50	56	10	1	119
	B	20	282	403	49	....	754	15	110	124	20	3	272	DC	....	2	8	3	....	13
	C	1	24	37	33	2	97	2	8	21	11	6	48	....	....	....	....	....	....	....
	D	....	....	4	1	1	6	....	2	2	7	4	15	....	....	....	....	....	....	....
	Total	185	1,225	857	102	3	2,372	85	404	209	57	13	768	....	6	82	94	16	1	199

APPENDIX 3

TOTAL SLAUGHTERINGS TO MAY 15, 1941

COMPARISON OF OFFICIAL AND PACKER GRADING OF CARCASSES AND IN RELATION TO LIVE GRADES

STEERS

Weight	Live Grade	Number Animals	Number Graded									
			A1		A		B		C		D	
			Official	Packer	Official	Packer	Official	Packer	Official	Packer	Official	Packer
Under 1,000..................	Choice....	80	19	22	48	40	12	17	1	1	....	....
	Good.....	589	47	48	365	362	159	161	18	17	....	1
	Medium...	546	9	8	230	219	273	290	30	25	4	4
	Fair......	65	....	....	7	5	32	32	25	27	1	1
	Plain.....	3	....	....	....	....	....	....	2	2	1	1
1,001 and up..................	Choice....	74	44	37	26	33	4	3	....	1	....	....
	Good......	473	49	48	335	321	84	97	5	7	....	....
	Medium...	220	8	6	120	105	89	99	3	10	....	....
	Fair......	26	2	....	8	7	11	12	5	7	....	....
All weights..................	Choice....	154	63	59	74	73	16	20	1	2	....	....
	Good......	1,062	96	96	700	683	243	258	23	24	....	1
	Medium...	766	17	14	350	324	362	389	33	35	4	4
	Fair.......	91	2	....	15	12	43	44	30	34	1	1
	Plain......	3	....	....	....	....	....	....	2	2	1	1
Total..........................		2,076	178	169	1,139	1,092	664	711	89	97	6	7
Percentage..........................		....	8·6	8·1	54·8	52·7	32·0	34·2	4·3	4·7	0·3	0·3

NOTE.—Although the animals placed in each grade by the official and packer grader as shown in appendix 3 and 4 were approximately of equal number, they were not always the same individuals. A further analysis showing the number of the same individuals that were placed in each grade by both the packer and official grader is given in table 2.

APPENDIX 4

TOTAL SLAUGHTERINGS TO MAY 15, 1941

COMPARISON OF OFFICIAL AND PACKER GRADING OF CARCASSES IN RELATION TO LIVE GRADES

HEIFERS

Weight	Live Grade	Number Animals	Number Graded									
			A1		A		B		C		D	
			Official	Packer	Official	Packer	Official	Packer	Official	Packer	Official	Packer
	Choice....	75	16	26	43	40	13	8	3	1	....	....
	Good......	347	23	25	210	226	104	83	8	11	2	2
	Medium...	187	1	1	50	56	114	112	20	16	2	2
	Fair.......	53	....	....	2	4	27	23	17	19	7	7
	Plain..	13					3	4	6	5	4	4
Total...........................		675	40	52	305	326	261	230	54	52	15	15
Percentage......................		100	6	8	45	48	39	34	8	8	2	2

APPENDIX 5

TOTAL SLAUGHTERINGS TO JULY 31, 1941

COMPARISON OF OFFICIAL AND PACKER CARCASS GRADES

Cows

Official Grade	Packer Grades						Comparison				
	A	B	C	BC	CC	DC	—	No.	Correct	Over	Under
B				1(2)				1			1
BC	5(1)	7(1)	1(1)	54	6			73	54	13	6
CC				9	105	5		119	105	9	5
DC					3	10		13	10	3	
								206	169	25	12
							Percentage	100	82	12	6

(1) Graded Officially as cows and as heifers by packer.
(2) Graded Officially as heifers and as cows by packer.

APPENDIX 6

ANALYSIS OF DRESSING PERCENTAGE

Dressing Percentage	Number of Animals							
	Steers to 1000 lb.		Steers over 1000 lb.		Steers all Weights		Heifers all Weights	
	Live Gr. Good	Off. Gr. A	Live Gr. Good	Off. Gr. A	Live Gr. Good	Off. Gr. A	Live Gr. Good	Off. Gr. A
43·0–43·99								1
48·0–48·99			3		3		2	1
49·0–49·99			2	2	2	2	3	2
50·0–50·99	2	1	3	2	5	3	8	4
51·0–51·99	9	3	3	2	12	5	13	7
52·0–52·99	10	9	10	8	20	17	18	13
53·0–53·99	24	14	20	19	44	33	31	21
54·0–54·99	38	23	28	31	66	54	23	15
55·0–55·99	57	57	41	36	98	93	31	34
56·0–56·99	92	102	71	67	163	169	40	31
57·0–57·99	78	90	55	63	133	153	59	62
58·0–58·99	89	116	70	74	159	190	46	46
59·0–59·99	56	84	63	63	119	147	26	31
60·0–60·99	45	58	42	52	87	110	22	21
61·0–61·99	41	47	25	31	66	78	9	7
62·0–62·99	21	21	17	15	38	36	6	2
63·0–63·99	12	14	12	17	24	31	1	
64·0–64·99	8	3	3	3	11	6	2	
65·0–65·99	1	2	1	1	2	3	1	1
66·0–66·99	2	2			2	2		
67·0–67·99	1	1			1	1		
68·0–68·99								
69·0–69·99								
70·0–70·99								
71·0–71·99	1	1			1	1		
76·0–76·99								1
Total An.	587	648	469	486	1,056	1,134	341	300
Mean Dr. %	57·4	57·8	57·4	57·6	57·4	557·7	56·1	56·4
No. within 3 Classes	259	308	196	204	455	512	130	127

APPENDIX 8

TOTAL SLAUGHTERINGS TO MAY 15, 1941
STEERS—PRICE ANALYSIS

Weight Range	Gr.	No. An.	Live Weight (Av.)	Car. Weight (Av.)	Dress %	Study 1			Study 2			Study 3		
						Basis Lot Pr. and Live Weight at Shipping Point			Basis Packers Live Grade Prices and Live Weight at Plant			Basis Car. Weight and Packers Car. Grade Prices		
						Live Pr. Per lb.	Proc. Av.	Equiv. Car. Pr.	Live Pr. Per lb.	Av. Proc.	Equiv. Car Pr.	Car. Pr. Per lb.	Av. Proc.	Equiv. Live Pr.
						(c.)	($)	(c.)	(c.)	($)	(c.)	(c.)	($)	(c.)
						A. Analysis By Live Grades								
Under 1,000	C	80	882	528	59·84	7·84	70·56	13·37	7·75	68·35	12·95	13·94	73·57	8·34
	G	589	899	521	58·00	7·55	69·85	13·40	7·00	62·91	12·07	13·69	71·49	7·95
	M	546	896	507	56·58	7·41	68·54	13·52	6·50	58·22	11·49	13·35	67·72	7·56
	F	65	863	474	54·97	7·18	63·31	13·34	6·00	51·79	10·91	12·49	59·48	6·89
	P	3	787	426	54·15	7·02	57·07	13·40	5·75	45·23	10·62	11·17	47·60	6·05
1,001 and up	C	74	1,096	663	60·45	7·92	89·88	13·56	7·50	82·22	12·41	13·74	91·12	8·31
	G	473	1,094	633	57·88	7·41	84·00	13·26	7·00	76·60	12·09	13·35	84·62	7·73
	M	220	1,100	638	58·06	7·43	85·01	13·31	6·50	71·48	11·20	13·09	83·62	7·60
	F	26	1,135	661	58·23	7·36	85·77	12·98	6·00	68·08	10·30	12·73	84·62	7·46
All weights	C	154	985	593	60·17	7·88	79·84	13·47	7·63	75·01	12·66	13·84	82·00	8·33
	G	1,062	986	571	57·94	7·49	76·15	13·33	7·00	69·01	12·08	13·54	77·34	7·85
	M	766	935	545	57·07	7·42	73·27	13·45	6·50	62·03	11·39	13·27	72·29	7·57
	F	91	941	528	56·09	7·23	69·73	13·21	6·00	56·44	10·70	12·56	66·66	7·09
	P	3	787	426	54·15	7·02	57·07	13·40	5·75	45·23	10·62	11·17	47·60	6·05
						B. Analysis By Official Carcass Grades								
Under 1,000	A1	75	899	545	60·69	7·90	72·34	13·26	7·13	64·03	11·74	14·50	79·08	8·80
	A	650	903	526	58·27	7·60	70·01	13·31	6·87	62·02	11·79	14·00	73·66	8·16
	B	476	891	498	55·89	7·48	68·05	13·67	6·66	59·34	11·92	13·00	64·70	7·27
	C	76	841	466	55·48	6·29	63·40	13·59	6·45	54·19	11·62	11·50	53·64	6·30
	D	6	883	471	53·34	6·62	59·47	12·62	6·29	55·72	11·83	10·50	49·47	5·60
1,001 and up	A1	103	1,103	666	60·34	7·88	89·75	13·48	7·16	78·85	11·85	14·00	93·19	8·45
	A	489	1,098	639	58·20	7·43	84·84	13·28	6·89	75·59	11·83	13·50	86·25	7·86
	B	188	1,097	627	57·19	7·36	83·03	13·24	6·72	73·66	11·74	12·50	78·41	7·15
	C	13	1,038	567	54·60	6·99	74·79	13·20	6·50	67·43	11·90	11·50	65·16	6·28
All weights	A1	178	1,017	615	60·47	7·89	82·42	13·40	7·14	72·61	11·81	14·19	87·26	8·58
	A	1,139	987	575	58·23	7·52	76·38	13·29	6·88	67·84	11·81	13·76	79·06	8·01
	B	664	949	534	56·31	7·44	72·39	13·53	6·68	63·40	11·86	12·83	68·56	7·23
	C	89	870	481	55·33	6·40	65·07	13·52	6·46	56·13	11·67	11·50	55·33	6·36
	D	6	883	471	53·34	6·62	59·47	12·62	6·29	55·72	11·83	10·50	49·47	5·60

APPENDIX 9

TOTAL SLAUGHTERINGS TO MAY 15, 1941

HEIFERS—PRICE ANALYSIS

Weight Range	Gr.	No. An.	Live Weight (Av.)	Car. Weight (Av.)	Dress %	Basis Lot Pr. and Live Weight at Shipping Point			Basis Packers Live Grade Prices and Live Weight at Plant			Basis Packers Car. Gr. Prices and Car. Weight		
						Live Pr. Per lb.	Av. Proc.	Equiv. Car. Pr.	Live Pr. Per lb.	Av. Proc.	Equiv. Car Pr.	Car. Pr. Per lb.	Av. Proc.	Equiv. Live Pr.
						(c.)	($)	lb. (c.)	(c.)	($)	lb (c.)	(c.)	($)	lb (c.)
All weights	C	75	706	408	57·70	7·22	52·30	12·83	7·25	51·19	12·56	13·35	54·40	7·70
	G	347	775	435	56·11	7·05	55·55	12·77	6·75	52·34	12·03	13·15	57·19	7·38
	M	187	755	414	54·79	6·76	52·06	12·58	6·25	47·19	11·41	12·63	52·30	6·93
	F	53	715	375	52·44	6·20	45·07	12·02	5·75	41·12	10·96	11·88	44·73	6·26
	P	13	693	366	52·77	6·15	43·86	11·99	5·25	36·39	9·95	11·27	41·81	6·03
	A1	40	715	417	58·25	7·37	53·96	12·95	6·95	49·54	11·89	13·98	58·16	8·13
	A	305	764	430	56·30	7·08	54·89	12·77	6·73	51·40	11·95	13·49	57·99	7·59
	B	261	768	423	55·13	6·77	53·01	12·52	6·44	49·40	11·67	12·48	52·81	6·88
	C	54	715	376	52·52	6·46	47·20	12·57	6·11	43·91	11·69	11·49	43·15	6·03
	D	15	636	329	51·75	6·22	40·45	12·29	5·82	37·12	11·28	10·00	32·91	5·17
Total....	......	675	756	420	55·58	6·91	53·17	12·66	6·56	49·60	11·81	12·89	54·25	7·18

APPENDIX 10

TOTAL SLAUGHTERINGS TO MAY 15, 1941

COWS—PRICE ANALYSIS

Weight Range	Gr.	No. An.	Live Weight (Av.)	Car. Weight (Av.)	Dress %	Basis Lot Pr. and Live Weight at Shipping Point			Basis Packers Live Grade Prices and Live Weight at Plant			Basis Packers Car. Gr. Prices and Car. Weight		
						Live Pr. Per lb.	Av. Proc.	Equiv. Car. Pr.	Live Pr. Per lb.	Av. Proc.	Equiv. Car Pr.	Car. Pr. Per lb.	Av. Proc.	Equiv. Live Pr.
						(c.)	($)	lb. (c.)	(c.)	($)	lb. (c.)	(c.)	($)	lb. (c.)
All weights	C	6	1,102	612	55·53	5·46	61·45	10·04	5·79	63·77	9·46	9·58	58·40	5·30
	G	82	1,127	615	54·60	4·98	55·91	9·08	5·29	59·52	9·67	9·10	55·88	4·96
	M	91	1,120	594	53·06	4·88	55·85	9·40	4·81	53·81	8·10	9·02	53·38	4·77
	F	16	1,128	601	53·28	4·46	51·74	8·61	4·30	48·40	7·15	8·78	52·61	4·66
	P	1	1,210	651	53·80	4·73	60·54	9·30	3·75	45·38	6·97	8·50	55·34	4·57
	BC	64	1,061	579	54·59	4·97	53·51	9·23	5·11	54·25	9·36	10·18	58·89	5·55
	CC	119	1,158	622	53·73	4·90	57·25	9·20	4·96	57·29	9·21	8·56	53·16	4·59
	DC	13	1,120	569	50·84	4·54	52·82	9·28	4·75	53·05	9·32	8·00	45·55	4·07
Total....	......	196	1,124	605	53·80	4·90	55·74	9·22	4·99	56·02	9·27	9·05	54·53	4·85

0 78787 67538 4

Oxford.

ESSELTE

10%